

CLAIMS

1. A rotatably supporting device for correcting balance of a rotating body, provided in a balance correcting device measuring an unbalance force, for rotatably supporting the rotating body, comprising:
 - a journal supporting part having a mandrel that rotatably supports the rotating body in a floating state about a vertical axis;
 - 10 a thrust supporting part that is provided at a lower end portion of the mandrel and supports a bottom part of the rotating body in the floating state;
 - a first fluid supply passage that supplies a fluid for floating between the mandrel and a rotation support hole of the rotating body;
 - 15 an annular groove provided in the thrust supporting part so as to face the bottom part of the rotating body; and
 - a second fluid supply passage that communicates with the annular groove to supply a fluid thereto for floating the rotating body.
2. A rotatably supporting device according to claim 1, instead of the annular groove, comprising an annular projection portion that is provided in an outer peripheral portion of the thrust supporting part or the rotating body, and that forms a gap smaller than a gap between a lower

surface of the bottom part of the rotating body and an upper surface of the thrust supporting part in the floating state of the rotating body,

wherein the second fluid supply passage is provided
5 so as to open on the thrust supporting part.

3. A rotatably supporting device according to claim
1, instead of the annular groove, comprising an annular
throttle portion that is provided in one of a surface of
10 the thrust supporting part and a surface of the rotating
body facing each other, and that forms a gap smaller than a
gap between a lower surface of the bottom part of the
rotating body and an upper surface of the thrust supporting
part in the floating state of the rotating body.

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4. A rotatably supporting device according to claim
3, wherein the second fluid supply passage is provided so
as to open on the thrust supporting part, in addition to
providing the throttle portion.

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5. A rotatably supporting device according to claim
1, wherein instead of comprising the annular groove, the
second fluid supply passage opens at a plurality of
positions on the thrust supporting part, and
25 a half distance between centers of the adjacent
openings of the second fluid supply passage is smaller than
a distance from the center of each of the openings to an

open outer peripheral end of the thrust supporting part.

6. A rotatably supporting device according to claim 1, configured to switch the fluid between a compressive 5 fluid and a non-compressible fluid to be supplied to the first fluid supply passage and/or the second fluid supply passage between

7. A rotatably supporting device for correcting 10 balance of a rotating body, provided in a balance correcting device measuring an unbalance force, for rotatably supporting the rotating body, comprising:

a journal supporting part having a mandrel that rotatably supports the rotating body in a floating state 15 about a vertical axis;

a thrust supporting part that is provided at a lower end portion of the mandrel and supports a bottom part of the rotating body in the floating state; and

a fluid supply passage that supplies a fluid for 20 floating between the mandrel and a rotation support hole of the rotating body;

wherein a space part is formed in at least either one of the mandrel and the rotation support hole for widening a space other than at a supporting portion.

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8. A rotatably supporting device according to claim 7, wherein a second fluid supply passage is provided for

supplying the non-compressive fluid for floating the rotating body to the thrust supporting part facing the bottom part of the rotating body.

5 9. A rotatably supporting device according to claim 7, wherein a discharge path communicated with the space part is provided for discharging the inside non-compressive fluid.

10 10. A rotatably supporting device according claim 7, wherein for discharging the non-compressive fluid, a second discharge path is provided to open upward on a topmost supporting portion between the mandrel and the rotation support hole of the rotating body.

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11. A rotatably supporting device according to claim 9 or 10, wherein discharge means for forcibly discharging the non-compressive fluid is provided at the discharge path and/or the second discharge path.

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12. A rotatably supporting device according to claim 7, wherein recovery means for recovering the non-compressive fluid is provided at a position confronting an outer periphery of the thrust supporting part.

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13. A rotatably supporting device according to claim 7, wherein an annular projection portion is provided

between the thrust supporting part and the rotating body,
for holding the non-compressive fluid.

14. A rotatably supporting device according to claim
5 7, wherein an annular groove is provided in a front end
portion of the fluid supply passage of the journal
supporting part.